



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office

App. No.	Pub. No.	Pub. No. (App. No.)	Pub. No. (App. No.)	Pub. No. (App. No.)
12,125	1,252,000	1,252,000	1,252,000	1,252,000

Attn: Mark J. Gebhardt  
MUELLING, RAASCH & GEBHARDT, P.A.  
P.O. Box 551415  
Minneapolis, MN 55458-1415

EXAMINER

DANG, PHU C.

1,252,000

1,252,000

DATE MAILED 11/15/2002

Please find below and or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/042 025

Examiner

PHUC T DANG

Applicant(s)

DERDERIAN ET AL

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.104(b).

## Status

- 1) ☐ Responsive to communication(s) filed on election filed on September 25, 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) 30-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 30-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 25 October 2002 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f):  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1) ☐ Certified copies of the priority documents have been received.  
2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) to a provisional application:  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO 852)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO 846)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449, Paper No. 1-2)
- 4) ☐ Interview Summary (PT 824, Paper No. 1-3)
- 5) ☐ Notice of Informal Patent Application (PT 801)
- 6) ☐ Other \_\_\_\_\_

Art Unit: 2818

## **DETAILED ACTION**

### **Election/Restrictions**

1. Applicant's election without traverse of Group I (claims 30-40) drawn to conductive structure is acknowledged for prosecution in the subject application. Applicant has the right to file a divisional application covering the subject matter of the non-elected claims.

### **Oath/Declaration**

2. The oath declaration filed on October 25, 2001 is acceptable.

### **Information Disclosure Statement**

3. The office acknowledges receipt of the following items from the applicant:

Information Disclosure Statement (IDS) filed on February 15, 2002.

### **Specification**

4. The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2818

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 30-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakabayashi (U.S. Patent No. 6,337,238 B1).

Nakabayashi discloses a conductive structure comprising at least a rough ruthenium layer, wherein a surface of the rough ruthenium layer or the rough ruthenium oxide has a surface area greater than a surface area of a completely smooth surface [col. 14, lines 46- ].

Nakabayashi discloses all the features of the claimed invention as discussed above, but does not disclose the surface of the rough ruthenium layer has a surface area greater than about 1.2 times a surface area of a completely smooth surface having a substantially identical shape as the surface of the rough ruthenium layer.

Using a ratio of the surface of the rough ruthenium layer has a surface area greater than about 1.2 times a surface area of a completely smooth surface having a substantially identical shape as the surface of the rough ruthenium layer is considered to be obvious in variation design, since the ratio between the rough surface and smooth surface of the ruthenium is well known in the art, thus would have been obvious to one skilled in the art to apply the appropriate ratio such

Art Unit: 2818

as 1, 2 times between a rough and smooth surface of the ruthenium for a purpose of increasing the surface of the lower electrode.

### **Conclusion**

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuc T. Dang whose telephone number is 703-305-1080. The examiner can normally be reached on 8:00 am-5:00 pm.
6. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on 703-308-4910. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-5841 for After Final communications.
7. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Phuc T. Dang

Examiner

Art Unit 2818

November 6, 2002